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NOTES ON FISHES IN THE ZOOLOGICAL MUSEUM
OF STANFORD UNIVERSITY.

XIV.—A NEW GENUS AND THREE NEW SPECIES OF
GOBIES FROM THE PHILIPPINES.

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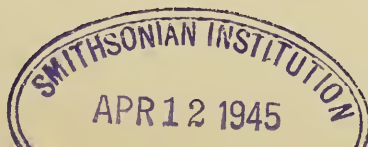
The extraordinary richness and bewildering variety of the goby fauna of the tropical Pacific continues to astonish the students of Philippines fishes. There are easily far more species of gobies than of any other group of marine fishes.

Among the most singular of gobies are those with vomerine teeth. These teeth, which are incisor-like, are always large and may be of relatively enormous size. They are placed transversely across the vomer, their inner edges often touching. In some species they are fused to form a gigantic chisel. Usually they are strikingly evident when the mouth is opened enough to enable one to see its roof plainly, but in some species the vomerine teeth are more or less hidden by a velum and are then very apt to be overlooked. No doubt numbers of species already known will be found to possess vomerine teeth too, when carefully examined for this character, while among those as yet undiscovered there will also be some with these singular teeth. Parallel evolution is strikingly displayed in the gobies and eleotrids in numerous cases, and this is also true of some of the gobies with palatal teeth. For example, the genus *Intonsagobius*, described in an earlier paper, is very near to *Callogobius* in most respects, and unless one examined the vomer he would call it a member of that genus. The new species here presented were obtained during my last trip to the Philippines in 1940-41. Lengths given are always of the standard length.

MINDOROGOBIOUS Herre, new genus.

Dorsal VI-I-10; anal I-9; scales ctenoid, 38-40 in longitudinal series; predorsal scales 14-16.

Head naked, with scarcely visible rows of sensory papillae on cheeks; eyes high up, very close together, in the anterior half of the head, mouth



terminal, jaws even, the small teeth in 3 rows in both jaws, with one or two pairs of posterior canines in the lower jaw; on the vomer is a pair of very large incisors, fused into a single chisel-like mass; the tongue is truncate, free, of moderate size. The dorsals are well separated, the second dorsal and anal not reaching the base of the pointed caudal, which is longer than the head; the pectorals and ventral are narrow and elongate. The gill openings are no wider than the pectoral base, the isthmus broad.

Type of the genus *Mindorogobius lopezi* Herre, new species.

KEY TO THE GENERA OF GOBIES WITH VOMERINE TEETH.

A. Scales ctenoid, 40 or less.

B. Scales about 26; predorsal scales 6.

C. Scales covering head and body; no prominent ridges or rows of sensory papillae on head...1. *Macrodontogobius*
One species from the Pelew Islands.

CC. Head naked, with many transverse and longitudinal ridges with sensory papillae; median lateral scales of trunk with vertical rows of sensory papillae.
2. *Intonsagobius*
One species from Jolo, Sulu Islands, Philippine Islands.

BB. Scales 38 to 40; predorsal scales 14 to 16; head naked; mouth terminal, very little inclined; rows of sensory papillae scarcely evident; lower jaw with one or two pairs of recurved lateral canines.....3. *Mindorogobius*
One species from Mindoro, P. I.

AA. Scales 40 or more, ctenoid or cycloid.

D. Scales more or less ctenoid, at least on the posterior half.

E. Scales 40 or 50, more or less cycloid on anterior half, those on posterior part enlarged; mouth nearly vertical, chin prominent; no conspicuous lines of sensory papillae on cheeks.....4. *Mangarinus*
One species from Mindoro, P. I.

EE. Scales 60 to 65, all ctenoid, or only those on posterior half; mouth moderately oblique, the jaws nearly or quite equal; head with many conspicuous lines sensory papillae.....5. *Mars*.....
One species from Samoa and two from the Philippines.

DD. Scales cycloid, more than 50.

F. Maxillary extended on preopercle, the lower jaw projecting; scales about 60; head, predorsal area, a strip back to second dorsal, and area below a diagonal from pectoral axil to anus all naked.
6. *Myersina*
One species from Culion, P. I.

FF. Mouth moderately oblique, jaws equal, maxillary not prolonged backward; scales 70 to 85; naked back to first dorsal origin and ventral base; upper lip lined with a dense papillate fringe.....7. *Smilogobius*
Two Philippine species and two from Singapore.

Mindorogobius lopezi Herre, new species.

Dorsal VI-I-10; anal I-9; pectoral 17; longitudinal series of scales 38 to 40, and 14 in a transverse series.

The depth of the low elongate body is 6, the head 3.85, the long pointed caudal 3, the ventrals 5 times in the length; the elongate pointed pectoral equals the head and extends beyond a vertical to the ventral tip. The eyes are high up, dorso-lateral, 3.7 in the head, very close together, the interorbital breadth not more than a third of the eye; the snout is short, convex, 4.66 in the head; the mouth is terminal, nearly horizontal, the posterior angle of the maxillary beneath the anterior part of the eye, or the front margin of the pupil. The teeth are in 3 rows in both jaws, the outer row enlarged, the others very small, slender, and pointed; the teeth of the outer row of the lower jaw are much the stoutest and terminate laterally in one or two recurved canines on each side; the vomerine teeth are as given in the generic diagnosis.

The dorsals are well separated, the first dorsal spines with elongate tips, the first spine greatly elongated with filiform tip and equal to the head in length; the second dorsal and anal are rather low, not reaching the caudal when depressed, the second dorsal height one and three-fourths in the head, the anal height two and a third times. The least depth of the caudal peduncle is two and a third times in the head and one and two thirds times in its own length.

The color in alcohol is pale yellowish, much paler on the under side of the head and trunk, with two longitudinal brownish stripes; the upper one extends from above the opercle to the top of the caudal peduncle, the other from under the pectoral to the middle of the caudal base; two pairs of circular brown spots on top of the head, and vestiges of 8 or 9 short brown crossbars over the back; a nearly vertical brown band from below the middle of the eye across the cheek behind the mouth to the under side of the head; the dorsals and caudal more or less crossbarred by rows of brown spots; the outer half of the anal and the middle ventral rays are dusky; the pectoral is colorless.

The type, 27 mm. long, and two paratypes, 22 and 26 mm. in length were taken from a mangrove swamp at Hacienda Waterous, Mangarin, Mindoro.

Named for Gregorio Lopez, fisherman and linguist extraordinary, my field collector and companion for many years, who accompanied me to Mindoro on my last trip.

Vaimosa mindora Herre, new species.

Dorsal VI-I-7 or 8; anal I-7 or 8; pectoral 16; scales in lateral series 28 or 30; transverse 8; predorsal scales 14, the anterior one enlarged and lying between the posterior part of the eyes; opercular scales 6.

The type, a male 23 mm. long, has the depth 6.4, the head 3.7, the caudal 3.28 times in the length; the body is elongate, low, the dorsal and ventral profiles nearly horizontal and parallel, the head low and broad, the trunk compressed posteriorly, the fish wedge-shaped when viewed

from above. The eyes are rather large, 3.4 in the head, close together, the interorbital space 1.8 times in an eye diameter, the short snout 4.7 in the head. The slightly oblique mouth is terminal, the jaws even, the maxillary extending beneath the middle of the eye, its length 2.7 times in the head. The small, sharp-pointed teeth are in 3 rows in both jaws. The dorsals are well separated, with 4 scales between them, the first and third spines of the first dorsal elongate and threadlike, reaching the third or fourth ray of the second dorsal when depressed, and 3.28 times in the length. The second dorsal and anal are of equal height, not reaching the caudal when depressed, 1.55 times in the head or 5.75 times in the length; the short ventral equals the longest second dorsal and anal rays; the pointed pectoral is 4.6 times in the length and 1.24 times in the head. The color in alcohol is very pale yellowish, the scales on the upper half of the body more or less marked by short bars and spots of brown; sides and under part of head with 3 brown nearly vertical stripes; conspicuous circular brown or dusky dots on the posterior margin of the opercle, on the pectoral base, and in a patch on the side under the pectoral; a row of 5 or 6 small brown spots along the middle of the side, the last on the caudal base being the largest; a brown strip from the eye to the maxillary and another to the angle of the mouth; both dorsals with conspicuous crossbars of reddish brown dots; 5 or 6 similar bars of spots on the caudal; the anal and ventral are more or less dusky, the ventral base dotted with dusky.

A male paratype 20 mm. long agrees in every essential. A female paratype, 21 mm. long, is deeper, and has no elongated or threadlike dorsal spines. It agrees otherwise, except that it has retained its colors better so that the markings are better defined.

The 3 specimens were collected in a brackish swamp on Hacienda Waterous, Mangarin, Mindoro.

The combination of characters given above, 28-30 lateral scales, 14 predorsal and 6 opercular scales, with 7 or 8 anal and second dorsal rays the character of the mouth, and the distinctive head markings, separate this from other members of the genus.

***Herreolus philippinus* Herre, new species.**

Dorsal VI-I-18; anal I-17-18; pectoral 18.

The naked scaleless slender body is laterally compressed, the dorsal profile gently curved, the greatest depth at the dorsal origin, 5.7 times in the length; the head and caudal are equal, 4.8 times in the length; the large eye is contained 3 times in the head; the interorbital width equals the blunt snout, and is half or a little more than half the eye. The mouth is nearly vertical, its angle not extending beneath the eye; the small teeth are in a single row in both jaws; a pair of stout anterior canines behind them in the lower jaw.

The fins are all low, the dorsals well separated, the origin of the second dorsal in advance of the anus; the first dorsal does not reach the second when depressed, its height a third of the head; the second dorsal and

anal rays are twice in the head, their posterior rays not, or the last dorsal ray almost, reaching the caudal when depressed; one specimen has the second dorsal rays 2.5 times in the head. The broad pectoral is 1.4 to 1.25 times in the head or 6.8 to 6 times in the length; the pointed narrow ventrals are 1.66 times in the head or 8 times in the length. A low ridge or fold of skin extends forward from the first dorsal to a point above the hind margin of the preopercle.

In life this slender pale little fish is nearly translucent, with a conspicuous black spot on the caudal base. In alcohol the color is very pale yellow, with a black spot nearly as large as the eye on the caudal base; the upper half of the body is darkened by minute brown dots, which form a more or less definite band on the caudal peduncle before the caudal spot; a faint blackish and very fine line along the middle of the side; a brown subdorsal band from the head to the caudal peduncle, becoming darker on and covering the first dorsal and basal part of the second dorsal; the anal is more or less brown, or may be clear along the middle, with brown base and a black margin; the other fins are clear, or the caudal may be brownish.

Described from the type, a female 24 mm. long, 3 female paratypes 21 to 24 mm. long, and a male paratype 21 mm. long. They were collected under and between the logs of a raft in front of the sawmill at Santa Maria, Zamboanga Province, Mindanao.

KEY TO THE KNOWN SPECIES OF HERREOLUS.

- A. Second dorsal I-13-16; anal I-12-15; a broad black stripe from lower jaw and across eye to tip of caudal.....*H. formosus*
Distribution, Siam and Philippines.
- AA. Second dorsal I-18; anal I-17-18; a black spot nearly equal to eye on caudal peduncle*H. philippinus*